Langley Research Center

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PROCESS SYSTEMS CERTIFICATION PROGRAM

National Aeronautics and Space Administration

RESPONSIBLE OFFICE: OFFICE OF SAFETY AND MISSION ASSURANCE

LPR 1740.7

PREFACE

This Langley Research Center (LaRC) Procedural Requirements (LPR) details the LaRC program for certifying individuals who operate facilities at LaRC. The general guidelines in this document establish a process system certification program that meets a facility's needs for its safe operation.

Comments, suggestions, or proposed changes to this LPR should be addressed to the Office of Safety and Mission Assurance (OSMA).

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1. INTRODUCTION

1.1. Purpose

The Process Systems Certification (PSC) Program defines the operator certification program for Langley Research Center (LaRC) facilities. The guidelines of this program shall be consistent with the requirements of NPR 8715.3, "NASA Safety Manual."

The purpose of this document is to describe the general guidelines that shall be followed to establish training and minimum certification levels for personnel involved with the operations of facilities at LaRC. This LPR provides guidance for documenting a successful and competent operator certification program that shall be included as a permanent record file in the facility resume.

1.2. Scope

The PSC Program shall apply to civil servants and contractors either permanently or temporarily assigned to a LaRC facility as an operator. For the purpose of the PSC Program and this document, the term facility is used in a broad sense. A facility can be a high-risk facility, such as the National Transonic Facility (NTF), a piece of research equipment that is included in LaRC's Laboratory Risk Evaluation Program (LREP), or any other facility/system that requires a trained and certified operator.

1.3. Responsibilities

The LaRC Office of Safety and Mission Assurance (OSMA) shall be responsible for managing the PSC program in accordance with NPR 8715.3. OSMA shall add, delete, or revise the program guidelines whenever it is determined that changes are needed in the interest of safety. The Facility Safety Head (FSH) shall be responsible for assuring the implementation of the PSC Program at a facility. It shall be the responsibility of the certified individual to take action, through experience and knowledge, for operating safely.

1.4 References

NPR 8715.3, “NASA Safety Manual”
LPR 1740.3, “Facility Safety Head and Facility Coordinator Guide”
LF 121, “LaRC Safety Manual Review for Certified Operations.”
LF 122, “Facility Safety Awareness and Procedure Review for Certified Operators”
LF 159, “Appointment for Operator Certification”

2. PROCESS SYSTEM CERTIFICATION (PSC) IMPLEMENTATION

2.1. General Requirement

The Facility Safety Head (FSH) shall be responsible for assuring the overall implementation of a training and certification program that shall be consistent with this LPR and LPR 1740.3, "Facility Safety Head and Facility Coordinator Guide." The Facility Coordinator (FC) shall assist the FSH implement the training and certification program.

Only trained and certified individuals shall be authorized to operate LaRC facilities. Individuals who perform or control hazardous operations shall demonstrate the necessary knowledge, skill, and judgment to perform the job safely. Personnel engaged in potentially hazardous operations shall be trained and certified as capable to operate the equipment and perform their jobs in a safe manner.

2.2. Operator Qualification

As a minimum, and prior to receiving certification, an individual shall successfully complete all required training. The required training shall be identified by the FSH and consistent for the level of certification, as identified in section 2.3. As a minimum, the individual shall:

- Review and understand the applicable safety manuals (see Section 2.4),
- Show a working knowledge, paying particular attention to safety awareness, of the hardware associated with their respective areas of responsibility (see Section 2.5.1), and
- Show a working knowledge of written operating procedures/checklists for proper operation of the facility (see Section 2.5.2).

The initial training for all individuals shall consist of classroom and/or on-the-job. If the FSH considers an individual to have insufficient knowledge of the system configuration for the safe operation of the facility, that individual shall not be declared a qualified operator.

2.3. Training and Certification Level

Personnel training shall be determined and structured according to the job being performed and the number of users required to operate the facility. Three levels of certification shall exist. The criteria for each certification level are identified as follows.

- Level 3 - The individual shall be capable of operating, monitoring, and servicing the system or equipment during facility operations. The individual shall be able to detect an unsafe condition or incorrect action and shall be capable of recovering or safely bringing the system or

equipment off-line. The individual shall have a Level 2 technician available but not necessarily working in an over-the-shoulder situation.

- Level 2 - The individual shall meet all the requirements of Level 3 and shall be skillful in inspecting hardware prior to facility operation and after operation. The individual shall be able to bring the system or hardware from a secured or off state to an operating mode. The individual shall be able to secure the system or equipment and bring them down to an off or safe state.
- Level 1 - The individual shall be capable of operating and trouble-shooting facility systems/equipment. The individual shall meet all of the requirements of Level 2 certification and shall be capable of identifying hardware or software malfunctions and performing minor system repair.

An individual must initially be trained to meet the minimum requirements to perform Level 3 certification activities. After a specified period of on-the-job training, as determined by the FSH, Level 2 certification can be obtained. Level 1 certification shall be reserved for highly experienced personnel, as determined by the FSH.

2.4. LaRC Safety Manual Review

Documents in the Safety Manual present minimum requirements that define guidelines and responsibilities for LaRC safety policies. The individual shall read and understand the safety handbooks identified as applicable for the facility to the satisfaction of the FC or FSH. Langley Form (LF) 121 “LaRC Safety Manual Review for Certified Operators” provides a list of safety manuals. The FC and/or FSH shall identify applicable documentation.

2.5. Facility Awareness and Operation

The individual shall document that they have satisfied the requirements for facility safety awareness of the facility and have working knowledge of facility safety and system configuration (see Section 2.5.1). The individual shall also document that they have satisfactorily completed training requirements for understanding and implementing the operating procedures (OP’s), emergency response procedures, and fire response procedures for the safe operation of the facility (see Section 2.5.2). The individual shall acknowledge completing these requirements by completing LF 122, “Facility Safety Awareness and Procedures Review for Certified Operators” and the FSH and FC shall concur with the individual’s acknowledgment.

2.5.1. Facility Safety Awareness

Each individual shall understand the interrelationships of subsystem components and monitoring equipment to the satisfaction of the FC and/or FSH. Personnel shall be trained in facility safety awareness by reviewing and understanding the facility’s configuration and operational requirements to identify the hazards in the system. Personnel shall be familiar with and understand the contents of the safety analysis conducted on the facility and, if

applicable, the Critical Items List (CIL). A safety analysis documents the risk in terms of severity and probability and describes hazards at the facility and the controls for the identified hazards. At LaRC, a safety analysis takes the form of either a Safety Analysis Report (SAR) or Laboratory Risk Evaluation (LRE).

2.5.2. Operating Procedures (SOP/LOP)

Operating Procedures, either Standard (SOP's) or Laboratory (LOP's), emergency response procedures, and facility fire procedures shall be reviewed and understood. Each individual shall verbally explain and perform the correct tasks for the duties associated with the safe operation of the equipment, work station, and/or control room panel. The individual's performance shall maintain the facility within its performance capabilities and limitations. An individual shall understand the note, caution, and warning alert categories expressed in the SOP's/LOP's and other related information that identify potentially hazardous situations. The individual shall demonstrate sound judgment in decision making. Only approved SOP's, LOP's, or checklists shall be used in training for certification.

2.6. Appointment for Certification

The appointment shall identify the equipment involved and shall designate the area and certification level for each individual. Upon successful completion of testing and evaluation, the individual can operate the system for which training and certification has occurred.

The certification shall expire 4 years from the date of issue. The approval signatures for the appointment shall be the individual's supervisor, the FC (when applicable), and the FSH. The final approval signature for appointment shall be the cognizant FSH using LF 159 "Appointment for Operator Certification."

3. CERTIFICATION MAINTENANCE

3.1. Annual Training

Refresher training shall be performed annually or as technological advances, equipment failures, operating errors, or changes at the facility dictate. Annual refresher training for certified individuals shall include the current safety handbooks, safety interlocks, and emergency response procedures.

3.2. Certification Renewals

Recertification training for certified individuals shall be required. Renewal certification shall require demonstration of proficiency and operating skill. Certified individuals shall undergo recertification during a period not to exceed 4 years.

3.3. Break-In-Service

Each facility shall have a method of information exchange to inform a certified operator of equipment and/or procedural modifications that have occurred during a break-in-service. When a certified individual returns to operate a facility after a break-in-service of 90 days or more, a verification of knowledge and understanding of facility operations shall occur prior to facility operation. Disqualification of the individual shall be declared when knowledge and understanding of facility operations cannot be demonstrated.

4. RECORDS

1. LF 121, "LaRC Safety Manual Review for Certified Operations."

2. LF 122, "Facility Safety Awareness and Procedure Review for Certified Operators."

3. LF 159, "Appointment for Operator Certification."

A. ACRONYMS

CIL	Critical Items List
FC	Facility Coordinator
FSH	Facility Safety Head
LaRC	Langley Research Center
LPR	Langley Procedural Requirements
LOP	Laboratory Operating Procedure
LRE	Laboratory Risk Evaluation
LREP	Laboratory Risk Evaluation Program
NASA	National Aeronautics and Space Administration
OSMA	Office of Safety and Mission Assurance
PSC	Process Systems Certification
SAR	Safety Analysis Report
SOP	Standard Operating Procedure